# Control ENGINEERING INDEX

VOLUME 1 . . . SEPTEMBER - DECEMBER 1954

\* For Illustration (WN) For What's New (IP) For Industry's Pulse (Ed) For Editorials

Unless otherwise designated, articles are main Features or Ideas at Work.

A	Man as a servo component. Joel Greene	Metzger (chart)Oct. *50
Aircraft	Oct. *58	()
Data-reduction system evaluates flight tests (WN)	Computers	Engineers
How to fit power boosters into aircraft	Component integrator — an unusual computing device. Edward Burgess	Basic books for your control engineering library. T. J. HigginsNov. *47
controls. J. A. Nightingale (charts) Dec. *24	(charts)Oct. *32	Dec. *48
Phototheodolite-Swiss missile tracker	Computers catch the public eye (WN) Sept. *8	Common denominator (Ed)Sept. 41 Language problem facing control engi-
features high accuracy (WN)Dec. *12 Sonar simulates radar. J. E. Kadish	Direct simulation bypasses mathema-	neers (IP)Sept. 35
Dec. *56	tics, simplifies analysis. V. L. Larrowe (charts)	Let him thing (Ed)
Amplifiers	How to select governor parameters with	Two engineers make movie describing
Hydraulic	analog computers. Schultz, Koenig	pipeline project (WN)Oct. 13 What's patentable in automatic con-
How to fit power boosters into air- craft controls. J. M. Nightingale	& Schultz Dec. 54 Keyboard system makes pot setting sim-	trol? F. H. RockettNov. *22
(charts)	ple. L. L. GordonOct. *64	European Machine Tool Exhibitions
New techniques for hydraulic servo	Peak found automatically with com-	Milan exhibition (WN)Nov. 12
design. J. M. Nightingale (charts) Sept. *73	puter circuit. Bernard Farber (charts) Oct. 70	Exhibitions
Magnetic	Push-button mechanical memory. E. R.	European Machine Tool Exhibitions-
Basic facts about magnetic amplifiers.	Kilgen (chart)Sept. 89	Milan show (WN)Nov. 12
Goldsmith, Herz & O'Neill (charts) Dec. *40	Supermarket computer calculates cor- rect change (WN)Sept. 14	Instrument Society of America—First
Current troubles with chlorine-mag-	Tangents computed with new circuit.	International Instrument Congress and Exposition (WN)Nov. *10
netic amplifier is proper answer for	P. A. Seay (charts)	
regulating. Smith, Rettig & Marr Dec. 52	Transistors simplify new IBM experi- mental computer (WN)Dec. *11	Expansion
Analyzers	What computers promise. David Rubin-	Building boom marks control expansion
Analysis moves from lab to line. P. A.	fienSept. *64	(WN)Oct. *12
Wilks, JrOct. *42 Spectrometer prints analysis. Hudson &	Construction	F
HeringSept. *87	Building boom marks control expansion	Feeders
	(WN)Oct. *12	How to counteract weigh-belt feeder
Assembly techniques	:	lag. W. C. Saeman (charts)Oct. 69
Automatic assembly cuts 21-in. TV	Continuous processing	Proportioning liquids automatically.
price (WN)	Analysis moves from lab to line. P. A.	Lawrence Lowy (charts)Sept. *68 Proportioning solids automatically. Law-
Atomic power	Wilks, Jr Oct. *42 Chlorine troubles—magnetic amplifier	rence Lowy (charts)Oct. *55
Dean, Gordon-starts new company	is proper answer for regulating.	
(WN)Oct. 14	Smith, Rettig & MarrDec. 52	Finance
Unitized controls for atomic piles. Sey- mour Oestretcher (chart) Sept. 83	Controllers	U. S. industry to spend less in 1955 (chart) (WN)
(стате)верг. оу	How to counteract weigh-belt feeder	Wall Street looks at control (IP)Oct. 23
В В	lag. W. C. Saeman (charts)Oct. 69	el Parti
Bearings		Flow-liquid
Stopping bearing burnouts on land as	D	Proportioning liquids automatically.  Lawrence Lowy (charts)Sept. *68
on land as on sea (WN)Oct. *13	Data processing	Simplified ratio control. Stanley Lenox
Books	Harvard to award first data processing degree (WN)Sept. *11	(charts)
Basic books for your control engineering		Flow-solids
library. T. J. Higgins Nov. *47 Control engineering library — servo-	Data reduction	How to counteract weigh-belt feeder
mechanisms. T. J. HigginsDec. *48	Data reduction by stretchingNov. *24 Digitalize shaft-position by induction.	lag. W. C. Saeman (charts)Oct. 69
,,	A. H. Kuhnel (chart)Nov. *54	Proportioning solids automatically. Law- rence Lowy (charts)Oct. *55
С	Flight tests evaluated with data-reduc-	Tener Lony (charts)
Circuits	tion system (WN)Nov. 13	G
AC stabilizing networks. A. D. Gronner	Design	Graphic panels
(charts)	How to design speed switching circuits.	The hottest thing in graphic panels.
simplifies analysis. V. L. Larrowe	B. T. Barber (charts) Pt 1 using nonlinear elementsNov. 50	G. J. CritesNov. *56
(charts) Nov 25	Pt 2 discontinuous speed-switching cir-	н
Generating control functions pneumatically. W. I. Caldwell (charts). Sept. 58	cuit design	Heating
How to design speed switching circuits.	Man as a servo component. Joel Greene Oct. *58	Induction heating control. J. V. Metz-
B. T. Barber (charts)	New techniques for hydraulic servo de-	ger (chart)Oct. *50
Pt 1 using nonlinear elementsNov. 50 Pt 2 discontinuous speed-switching cir-	sign. J. M. Nightingale (charts)	Hydraulics
cuit design	Sept. *73 Proper wiring design—trouble shooting	New techniques for hydraulic servo de- sign. J. M. Nightingale (charts)
Peak found automatically with com-	in advance. Gerald Weiss (charts)	Sept. *73
puter circuit. Bernard Farber (charts) Oct. 70	Sept. 49	
Tangents computed with new circuit.	Simplified ratio control. Stanley Lenox (charts)	to and a
P. A. Seay (charts)		Inspection
31 ways to multiply. S. A. Davis (tables)	E	Eddy-current testing—a new tool makes inspection automatic. Richard Hochs-
Voltage monitor detects any change	Editorials	child (chart)Oct. *35
(chart)Nov. 58		Instrument Society of America-First
Components	Gaps in the literatureNov. 21 Let him thinkDec. 23	International Instrument Congress and Exposition (WN)Nov. *10
Component integrator — an unusual	Our profession growsOct. 27	•
computing device. Edward Burgess	Electric heating	Instrumentation
(charts)Oct. *32 Flywheel oscillation dampers. S. A.	Induction	Hydrodynamic testing instrumentation. Kirchman & KingDec. *60
, wheel oscination dampers. S. A.	Anduction	Kitchinan & KingDec. '00

Progress when management buys con-	passes mathematics, simplifies analy-		Speed control	
trol engineering. H. C. Frost. Sept. *44	sis. V. L. Larrowe (charts)Nov. Stabilizing — AC stabilizing networks.		Controlling tension of plastic sheet (chart) Sept.	79
L	A. D. Gronner (charts)Sept.	55	(chair)sept.	,,
Labor	Nuclear reactors		Systems	
Labor looks at control (IP)Nov. 17	Unitized controls for atomic piles. Sey-		Analysis moves from lab to line. P. A.	42
Liquids	mour Oestretcher (chart)Sept.		Wilks, JrOct. * Controlling tension of plastic sheet	74
Proportioning liquids automatically.	_		(chart)Sept.	79
Lawrence Lowy (charts)Sept. *68	P		Generating control functions pneumat- ically. W. I. Caldwell (charts). Sept.	58
Simplified ratio control. Sidney Lenox (charts)	Patents		Induction heating control. J. V. Metz-	,,
(citatis)	What's patentable in automatic control?  F. H. Rockett		ger (chart)Oct. *	50
M			Man as a servo component. Joel Greene Oct. *	58
Maintenance	Personality sketches		Nuclear-electronic-magnetic control sys-	
Stopping bearing burnouts on land as	Boyd, DaveOct.		tem will produce perfectly weighted cigarettes (WN)Sept. *	12
on sea (WN)Oct. *13	Mason, Clesson EDec.	-9	Power boosters—how to fit them into	
Management	Plastics		aircraft controls. J. A. Nightingale	24
Basic books for your control engineering	Controlling tension of plastic sheet		(charts) Dec. * Progress when management buys con-	44
library. T. J. HigginsNov. *47	(chart)Sept.	. 79	trol engineering. H. C. Frost. Sept. *	44
Dec. *48 Progress when management buys control	Pneumatics		Simplified ratio control. Stanley Lenox (charts)	32
engineering. H. C. FrostSept. *44	Generating control functions pneumat-		(charts)	/
What's patentable in automatic control?  F. H. RockettNov. *22	ically. W. I. Caldwell (charts) Sept.		Т	
7. 11. Notkett	Production		Telemetering	
Manufacturing	Automatic assembly cuts 21-in. TV		"Dial a diesel" is remote nursemaid	
Fresh look at the automatic factory-	price (WN)Nov.	*14	for locomotives (WN)Nov.	12
report by Harvard students (WN) Oct. 17	Leaner markets than you think. G. M.		Templates	
	AtturaOct. Native enterprise reaches for Gulf Coast		Frequency response plotted with tem-	
Marketing	instrument and control markets (IP)		plates (charts)Nov.	35
Leaner markets than you think. G. M.	Dec.	. 19	Terminology	
AtturaOct. *29 Native enterprise reaches for Gulf Coast	Proportioning		"Automation"—choose your meaning	
instrument and control markets (IP)	Automatic scale makes proportioning	;	Nov.	60
Wall Street looks at control (IP). Oct. 23	more accurate (chart)Oct. What's available today for automatically		Language problem facing control engineers (IP)Sept.	35
Materials handling	proportioning liquids. Lawrence Lowy (charts) Sept.		Testing	
How to counteract weigh-belt feeder	What's available today for automatically	1	Data-reduction system evaluates flight	
lag. W. C. Saeman (charts)Oct. 69	proportioning solids. Lawrence Lowy (charts)Oct.		tests (WN)	13
Mathematics	R		inspection automatic. Richard Hochs- child (chart) Oct. *	25
How to select governor parameters with analog computers. Koenig & Schultz	Regulators		Instrumentation for hydrodynamic test-	,,
Dec. 54	-		ing. Kirchman & KingDec. *	60
Solving cubics this way is easy. W. H.	(chart)Nov.		Tools of the Trade	
Gable (charts)'Oct. 49	Research		Data reduction by stretching Nov. *	24
Measuring	Gaps in the literature (Ed)Nov.	21	Templates help plot frequency response	25
Data reduction by stretchingNov. *24	Hypothermia technique investigated—		(chart)	85
Standpipes simplify flowmeter calibra- tion. F. H. Jarrett	Reatherm controls patient tempera-			
	ture. A. J. Monroe (charts)Nov.	. 57	Training	
Medical applications	c c		Harvard to award first data processing degree (WN)Sept. *	11
Bedside blood-splitter features automatic control (WN)	Servomechanisms		Our profession grows (Ed)Oct.	27
Hypothermia technique investigated-	Control engineering library. T. J. Hig-		Sonar simulates radar for ideal trainer.	156
Reatherm controls patient tempera-	ginsDec.	*48	J E. KadishDec. *	30
ture. A. J. Monroe (charts)Nov. 57	Flywheel oscillation dampers. S. A. Davis (charts & tables)Dec.		V	
Memories	How to fit power boosters into aircraft		Valves	
Push-button mechanical memory. E. R. Kilgen (chart)	controls. J. A. Nightingale (charts)		Characterizing valves through feedback.	47
	Keyboard system makes pot setting sim-	*24	J. H. M. PaynterOct. *	47
Meters	ple. L. L. GordonOct.	*64	W	
Proportioning liquids automatically.  Lawrence Lowy (charts)Sept. *68	Man as a servo component. Joel Greene		Water treatment	
Proportioning solids automatically. Law-	New techniques for hydraulic servo de-	*58	Polarograph gages water purity. M. K.	
rence Lowy (charts)Oct. *55	sign. J. M. Nightingale (charts)		MackOct. * Simplified ratio control. Stanley Lenox	68
Standpipes simplify flowmeter calibra- tion. F. H. JarrettDec. *37	Sept. Spectrometer prints analysis. Hudson &		(charts)	32
,	HeringSept.		Weighing	
Multipliers			Automatic scale makes proportioning	
31 ways to multiply. S. A. Davis (tables)	Slide rules	*0"	more accurate (chart)Oct.	75
	Frequency response made easySept.	-85	Wiring	
N	Solids		Proper wiring design—trouble shooting	
Networks	Proportioning solids automatically. Law-		in advance. Gerald Weiss (charts)	
Simulation of - Direct simulation by-	rance Lowy (charts)Oct.	. *55	Sept.	49

## AUTHOR INDEX

Attura, George M. Leaner markets than	amplifiers
you thinkOct. *29	Higgins, T. J. Basic books f
Barber, Basil T. How to design speed	engineering library
switching circuits. Pt 1, Nov. 50; Pt 2	
Dec. 33	Hochschild, Richard. Edd
Burgess, Edward. Component integrator:	ing: a new tool ma
can you use an unusual computing	automatic
device?Oct. *32	Hudson, R. L. & K. W.
Caldwell, W. I. Round-up: 12 ways of	trometer prints analysis
generating control functions pneu-	Jarrett, Frederick H. Stane
matically Sept. 58	flowmeter calibration
Crites, G. Jewett. The hottest thing in	Kadish, J. E. Sonar simulat
graphic panels	Kilgen, Eugene R. Push-b
Davis, Sidney A. Flywheel oscillation	ical memory
dampers	King, D. A. & E. J. Kird
31 ways to multiplyNov. 36	mentation for hydrod
Farber, Bernard. Computer circuit finds	
peak automaticallyOct. 70	Kirchman, E. J. & D. A.
Frost. H. C. Management buys control	mentation for hydrod
engineeringSept. *44	
Gable, William H. Solving cubics this	Koenig, E. C. & W. C. Sc
	select governor param
way is easyOct. 49 Goldsmith, H. A., H. Herz & B. J.	alog computers
O'Neill. Basic facts about magnetic	Kuhnel, A. H. Digitalize sl
	induction
Gordon, Lloyd L. Keyboard system makes	Larrowe, Vernon L. Direct
pot setting simpleOct. *64	passes mathematics, sin
Greene, Joel. Man as a servo component. Oct. *58	Lenox, Stanley. Simplified
	:
Gronner. Alfred D. AC stabilizing net-	Lowy, Lawrence. What's
works	for automatically propo
Hering, K. W. & R. L. Hudson. Spec-	D 11-1
trometer prints analysis Sept. *87	Proportioning solids .
Herz. H., B. J. O'Neill & H. A. Gold-	Mack, Milton K. Dr. P

amplifiersDec.	40	Marr, J. S., J. P. Smith & C. Rettig. Cur-	
iggins, T. J. Basic books for your control		rent troubles with chlorineDec.	52
engineering libraryNov. *	47	Metzger, John V. Induction heating con-	
Dec. *		trolOct.	*50
ochschild, Richard. Eddy-current test-		Monroe, A. J. Blankets to keep you cold	
ing: a new tool makes inspection		Nov.	57
automaticOct.	35	Nightingale, James A. How to fit power	
ludson, R. L. & K. W. Hering. Spec-		boosters into aircraft controls Dec.	*24
	87	New techniques for hydraulic servo de-	
rrett, Frederick H. Standpipes simplify		signSept.	*73
	37	Oestretcher, Seymour. Unitized controls	
	56	for atomic pilesSept.	*83
ilgen, Eugene R. Push-button mechan-		O'Neill, B. J., H. A. Goldsmith &	
ical memorySept.	89	H. Herz. Basic facts about magnetic	
ing, D. A. & E. J. Kirchman. Instru-		amplifiersDec.	40
mentation for hydrodynamic testing		Paynter, Henry M. Characterizing valves	
Dec. 4	60	through feedbackOct.	*47
irchman, E. J. & D. A. King. Instru-	••	Rettig, C., J. S. Marr & J. P. Smith. Cur-	
mentation for hydrodynamic testing		rent troubles with chlorine Dec.	52
Dec. 4	*60	Rockett, Frank H. What's patentable in	
oenig, E. C. & W. C. Schultz. How to	-	automatic control?Nov.	*22
select governor parameters with an-		Rubinfien, David. What computers prom-	
alog computersDec.	54	iseSept.	*64
uhnel, A. H. Digitalize shaft-position by		Saeman, Walter C. How to counteract	
inductionNov.	•54	weigh-belt feeder lagOct.	69
arrowe, Vernon L. Direct simulation by-	,,	Schultz, W. C. & E. C. Koenig. How to	
passes mathematics, simplifies analysis		select governor parameters with an-	
Nov.	25	alog computers Dec.	54
enox, Stanley. Simplified ratio control	-/	Seav, Perry A. New circuit computes tan-	
Nov.	32	gentsNov.	59
owy, Lawrence. What's available today	14	Smith, J. P., C. Rettig & J. S. Marr. Cur-	,,
for automatically proportioning liquids		rent troubles with chlorine Dec.	52
Sept. 1	*68	Weiss, Gerald. Trouble shooting in ad-	12
	*55	vance by proper wiring design. Sept.	49
fack, Milton K. Dr. Pepper nips its	//	Wilks, Paul A. Jr. Analysis moves from	17
froth Oct	•68	lab to line Oct	*47

## Control ENGINEERING INDEX

VOLUME 2...JANUARY-DECEMBER 1955

\* For Illustration (WN) For What's New (IP) For Industry's Pulse (Ed) For Editorials

Unless otherwise designated, items are feature articles or Ideas at Work.

A	control (IP)Aug.	41	Facts that influence your approach to	
Actuators	Radioactive instruments: versatile, pri- mary elements. Stewart & Leighton		telemetering. W. E. Rufleth (maps)	*48
Hydraulic servo actuator has low standby	(table)	*50	4 questions about control timers. J. E.	
power. Goodwin & MorrisonAug. *82	Sensors for gaseous diffusionAug.	*85	Graham (table)Aug.	65
Valve actuators tie precision to power.  C. D. Close (charts)Sept. *97	Your place in nuclear control (Ed). Aug.	47	Mechanical integrators control torque-	*62
C. D. Close (Climita)	_		speed. L. E. KeeneJan. Monitors safeguard industry's processes	0)
Aircraft	В		(table)Sept.	
Automatic feathering system takes care	Books		Tangent integrator: another use for the	
of dead propeller during test flight.	Control engineering library. T. J.		sphere. Edward BurgessAug. Timers pace automatic production. J. E.	-05
(WN)	Higgins. Pt 3 Computers and numerical		Graham (table) Sept.	74
Autopilot guides planes safely (WN) Apr. 13	analysisJan.	*57	•	
Better synchro repeaters from damper-	Pt 4 Business dynamics Feb.	*60		
stabilized feedback. J. E. Ward July *90	Pt 5 Periodicals and bibliographies Mar.	*67	Computers	
Booster design. J. M. Nightingale			Analog	
(charts)Jan. *49	C		Analog computer review series  1. A broad look at analog com-	
C-G control copes with shifting fuel. R. L. Bergeson	Calibration		puters. William Allison Feb.	*53
Data processor speeds ram-jet tests.	Calibrate angular accelerometers without		2. Basic math with AC analogs.	*57
(WN) May 22	precise accelerations. V. B. Corey		G. M. DavidsonMar.  3. Make the most of good com-	
Digital-computer control for military	Aug.  Self-resonant demagnetizer calibrates in-	*87	puters. C. D. BockApr.	*60
aircraft and guided missiles (WN)  Jan. 16	struments. Lingel & BurkettMay	*83	4. It pays to use error analysis dur-	
Flight control and the digital computer.	,		ing design. William Allison (charts) May	
E. M. GrabbeOct. *64	Checkers		5. These steps lead to good com-	
Position and homing computer tested by RCAF (WN)June 18	Problem checker checks computer too.		puters. (tables) C. F. Abt. June	
Servos vs. spirals make light planes safer.	McCoy & LovemanJuly	97	Analog computer trims ships. Swen- son & BengtsonOct.	
K. M. MillerJune *91			Gas network computer (WN)Apr.	13
Silent simulator for jet engine testing at Northrop	Circuits		Ohio Edison power system will be	
Supersonic flight simulator (WN)May 22	Error analysis is key to economical sys-		controlled by computer (WN) Oct.	
Supersonic wind tunnel at Moffet Field,	tem design. William Allison (charts) May	51	Unique analog computer developed	
Calif. will use "Datatron" computer (WN)	Hydraulic analog for thermal circuit	**	by Dr. W. W. Gilbert of GE	
TV sharpens measurementsAug. *89	analysis. Prof. C. O. MackeySept.*	130	(WN)	
Test-flight analysis speeded with com-	Measure motion to 0.0001 in. without friction or wear. J. H. BrownApr.	*50	have largest flight simulation center	
puter. A. H. KuhnelMar. *81 Wright Air Development Center to have	Problem checker checks computer too.		in the world (WN)Oct.	21
largest flight simulation center in	McCoy & Loveman July	*97	Digital Applied Digital Series	
world (WN)Oct. 21	Tap the transducer to up system ac- curacy. A. D. MaierOct.	*92	1. Data processing systems: how	
Amplifiers			they are used. E. M. Grabbe Dec.	
	Color		2. Automatic production inventory	
Computing amplifier subs for servo	Color basics for the control engineer.		control with electronic data	
amplifier. Hosemann & Pendleton	O. H. Olson.  Pt. 1 The fundamentals of colorOct.	*70	processing. E. D. Lucas Jr. Sept.	
(table)	Pt. 2 The instruments of color measure-	70	Banking readies for automatic service	
Aircraft booster design. J. M.	mentNov.	*90	(WN)Dec.	*18
Nightingale (charts) Jan. *49			Basic digital series 1. Data processing systems: how	
Magnetic Magnetic amplifiers invade heavy-duty	Compensation		they function. J. D. Noe. Oct.	
systems. Ulrik KrabbeSept. *90	Compensating function pots for loading	70	2. Digital computers need me-	
Mechanical	errors. J. Gilbert (charts)Mar. Compensating instruments for tempera-	70	thodical number systems. I. S. LernerNov.	
Clockwork torque amplifier rotates discretely. R. N. AugerJan. *63	ture changes. Robert Gitlin (charts		3. Digital computers need logical	
discretely. R. 14. Mager Jan. 07	& tables)	70	design. Eldred NelsonDec.	
Analyzers	Designing thermistor temperature-com- pensating networks graphically. Frank		"Datatron" computer to be used at supersonic wind tunnel at Moffet	
Get frequency response from transient	Bennett	*66	Field, Calif. (WN)July	
data by machine computing. J. B.	How temperature affects instrument accuracy. Robert Gitlin (charts &		Digital commutator reads panel gages.	
Reynolds Jr Oct. *55 Hydraulic analog for thermal circuit	tables)Apr.	*70	J. D. HumphreysFeb. Digital-computer control for military	
analysis. Prof. C. O. MackeySept.*130	How temperature compensation can be		aircraft and guided missiles (WN)	
In-stream analyzers spark unique acety-	used. Robert GitlinJune Shortcut in compensating pot loading	*71	Jan.	
lene process (WN)June *28	errors. J. Gilbert (charts & tables)		Internal Revenue Service secures Univac for tax calculations (WN)	
Assembly techniques	Feb.	36	July	18
Components wedded to printed circuits			Magnetic drum turned inside-out and	
with "Autofab" machine for com-	Components		festooned with tape (WN)Jan. Management eyes—then buys—com-	
puter production (WN)Apr. *12	Analog computer review series		puters (IP)May	
Paper assembly line machine (WN)  Mar. *13	1. A broad look at analog computers. William AllisonFeb.	*53	Marketing—cash registers can sell computers Feb.	
Atomic power	<ol><li>Basic math with AC analogs.</li></ol>		Mobilac used at Socony Refinery	
AMF first with research reactor for	G. M. DavidsonMar. 3. Make the most of good compo-	*57	(WN) Feb.	
private industry (WN)Apr. *20	nents. C. D. BockApr.	*60	Royal Dutch Shell group employs MIRACLE computer to solve prod-	
Geneva conclave promises strides in	4. It pays to use error analysis during		uct and process calculations (WN)	
nuclear control (WN)Aug. 13 Minnesota firms team up to study	design. William Allison (charts)	51	Such Aircraft first Swedish industry	
atomic projects that will benefit	An automatic random programmer.	51 ,	Saab Aircraft, first Swedish industry to acquire a computer (WN)Apr.	
Minnesota and its industry (WN)	G. A. RobertsSept.	136	SEAC analyzes bids on government	
Aug. 13 Nuclear energy breeds new markets for	Design with packaged components.  B. J. O'NeillJuly	*81	Shell Development Co. to use digital	

computer for setting up a mathe-		Pushbutton electronic supervisor (WN)		errors. J. Gilbert (charts)Mar.	70
matical model of a refinery (WN)		Apr.	14	Compensating instruments for tempera-	
Oct.	21	Radioactive instruments: versatile, pri-		ture changes. Robert Gitlin (charts &	
Sperry Rand Corp. automatizing com-	14	mary elements. Stewart & Leighton	*50	tables)	70
puter programming (WN)Aug. UCLA uses SWAC to solve problem	14	(table)	- 50	Compact multiplier puts the Hall effect to work	*04
of programming ringing of campus		CarlsonFeb.	*58	Computing amplifier subs for servo am-	,,
bell (WN)Oct.	22	Stress-energy measurement needs fast		plifier. Hosemann & Pendleton	
	13	temperature follower. G. L. Smith		(table)Mar.	*85
Verifier prints out patchcord loca-	+03	Tape-controlled machining nears the	*87	Design by routine but consider	
tions. Braun & Warshawsky Dec.	.03	average plant (WN)June	*14	the fundamentals (Ed)Dec.	37
Special purpose Automatic freightyard shuffles cars		Valve actuators tie precision to power.		Digital computers need logical design.	60
	*28	C. D. Close (charts)Sept.	*97	Eldred Nelson Dec. Error analysis is key to economical sys-	00
Backseat computer rates fuel in				tem design. William Allison (charts)	
action. Parthemore & Spraker. June	*58	Counters		May	51
Computers team with nuclear gages to		Electronic counting moves into control.		How stabilization improves closed loop	
J. D. Cochrane Jr. & others. Dec.	*76	J. D. FahnestockJan.	*42	operation. Davidson & Nashman	67
Flight control and the digital com-	, -	Ticket printer consolidates three loading	***	How temperature affects instrument	07
puter. E. M. GrabbeOct.	*64	records. Vernon KleinMar.	*85	accuracy. Robert Gitlin (charts &	
Ford museum displays first naval gun-	***	_			*70
fire computer (WN)May	-20	D		How temperature compensation can be	
GE's new digital positioner (WN) Oct.	*26	Data processing		used. Robert GitlinJune	-71
Geniac computer for youngsters		Applied Digital Series		How to operate a two-phase motor from a single-phase source. Burian &	
(WN)May	22	<ol> <li>Data processing systems: how they are used. E. M. GrabbeDec.</li> </ol>	*40		48
Get frequency response from trans-		Applying data-processing to fluid-carry-	40	Lower static error in contactor servos.	
sient data by machine computing.	*55	ing pipeline network terminals (WN)		Dec.	81
J. B. Reynolds Jr Oct. Measure motion to 0.0001 in. with-	">>>	July		"Make" contactor servos. D. V.	70
out friction or wear. J. H. Brown		ARF catalogs recorders (WN)Mar.	14	Spriggs Dec. Now you can design with packaged	79
Apr.	*50	Automatic production inventory control with electronic data processing.		components. B. J. O'NeillJuly	*81
Mobile mapmaker for Army Corps.	*10	E. D. Lucas JrSept.	68	Regulating systems design by error	
of Engineers (WN)June	*18	Banking readies for automatic service		coefficients. P. E. Smith Jr Nov.	*69
Position and homing computer tested by RCAF (WN)June	18	(WN)Dec.	*19	Roots of automatic processing editorial	
Test-flight analysis speeded with com-		Basic digital series 1. Data processing systems: how they			57
puter. A. H. KuhnelMar.	*81	function. J. D. NoeOct.		Sampled-data feedback improves system response. Bertram & Franklin. Sept.	107
TRAK coverts Morse code to printed	*00	2. Digital computers need methodical		Shortcut in compensating pot loading	
copyNov.	-99	number systems. I. S. Lerner. Nov.	*82	errors. J. Gilbert (charts & tables)	
		<ol> <li>Digital computers need logical de-</li> </ol>		Feb.	36
Computing facilities		sign. Eldred NelsonDec. Benson-Lehner equipment-packed coach		Space dynamics in machine tool control.  J. L. BowerSept.	105
Analog computer facilities established at	*22	hits road to sell data processing (WN)		Systems analysis predicts performance—	10)
Dian Laboratories, N. Y. (WN). Oct. Digital computing center established at	- 22		*18	Methods at Work. Fielder, McGrath	
IBM, N. Y. (WN)Oct.	*22	Bush, Dr. Vannevar calls for automatic		& Buescher (charts & tables)July	*65
GE and IBM weld first link of com-		enclyclopedia (WN)Apr.		Tap the transducer to up system accu-	*07
puter network (WN)Mar.	*12	Data processing takes teamwork (Ed) July		racy. A. D. MaierOct. Thermistor temperature-compensating	-92
IBM's revamped data processing center	***	Integrated data processing links Syl-		networks graphically designed. Frank	
(WN)Oct. Purdue starts new computer center	- 22	vania empire (WN)Sept.		BennettNov.	*66
(WN)Jan.	14	Lab on wheels with data-analysis equip-		These 7 steps design a tach stabilized	77
Wayne University plans computer cen-		ment tours country (WN) May Monsanto Chemical's St. Louis plant in-		servo. J. E. Kadish (charts)Aug. These steps lead to good computers.	72
ter growth (WN)June	18	stalls data processing system (WN)		C. F. Abt (table)June	*76
			*18	Two shortcuts for selecting a precision	
Construction		Monsanto is first customer for first 702		trimmer. Frank Bradley July	54
Fischer & Porter constructing fluid		machine (WN)May		What pulses can do for you. A. A.	***
meter calibration laboratory in Hat-		New approach to information storage.		BlundiJuly	*50
boro, Pa. (WN)July	-24	G. W. KingAug. Queens Midtown tunnel tolls to be		You need no computer to graphically determine the dynamics of heat perco-	
Giannini opens new plant for Datex Div. at Monrovia, Calif. (WN)		telemetered by data processing sys-		lation. Yasundo Takahashi (charts)	
Oct.	*32	tem (WN)Sept.		May	46
Raytheon Manufacturing Co.'s ware-		Railroad schedules ahead for nationwide			
house and sales office completed	*24	pulse-controlled traffic Dec.			
(WN)July Robertshaw-Fulton Controls opens new	-24	Ram-jet tests speeded with data proc- essor (WN)		E	
plant in Toronto (WN)Oct.	*32	Tape-controlled embroidering machine		Editorials	
		(WN)		Broaden your scopeApr.	43
Continuous processing		Teletype-tape offers low cost storage.		Consider the humanNov.	
Minnesota M&M continuous-flow sand-		Harold DicksteinOct. Univac's new census job (WN)Mar.		Data processing takes teamworkJuly	47
paper making process (WN)Mar.	*16	chivae's new census job (****)viai.	1,	Design by routine but consider the fundamentals Dec.	37
		Data reduction		Education is our limitJan.	
Controllers				Let's pull togetherMar.	
Automatic mill control. C. A. Vossberg		Test-flight analysis speeded with com- puter. A. H. KuhnelMar.		Let's pull together-againMay	
Mar.	*42	Verifier prints out patchcord locations.		Meeting the need for electronic control	
C-G control copes with shifting fuel.	*60	Braun & WarshawskyDec		standardsOct.	
R. L. BergesonApr. Electronic controls qualify on Atlantic	00			Needed: technicians abroadJune The roots of automatic processing—	49
Refining's Port Arthur catformer.		Design		editorial theme by D. P. Campbell	
July	*93	Aircraft booster design. J. M. Nightin-		Sept.	57
Keep water pressure constant through		gale (charts)Jan.	. *49	Standards in controlFeb.	
pump control. B. A. James Apr.	*44	Compensating function pots for loading	,	Your place in nuclear controlAug.	47

Electric heating		G		neering approach in automatic con-	
Hamburger machine (WN)Feb.	*14	Graphic analysis		trol July 25-27 (WN)Oct. RPI gives course on magnetic amplifiers	
Electronics		Control systems analyzed graphically. H. M. Paynter. Pt 1 Feb. *30, Pt. 2		(WN)Aug.	18
Electronic counting moves into control.			*72	<ul> <li>Univ. of Michigan announces expanded two-week summer course on com-</li> </ul>	
J. D. FahnestockJan.	*42	Design regulating systems by error co-		puters, Aug. 1-12 (WN)Apr.	24
Where is electronics used in control?		efficients. P. E. Smith Jr Nov.		Univ. of Michigan announces two short	
Feb.	*41	Designing thermistor temperature com-		courses in automatic control, June 13-	16
Engineers		pensating networks graphically. Frank Bennett	*66	18 and June 20-22 (WN)Mar.	16
Basic books for your control engineering		Dynamic analysis without upset. J. B.		West Va. Univ. offers gas measurement curricula (WN)	20
library. T. J. Higgins Pt. 3 Jan.	*57	ReswickJune		(11.11)	
Pt. 4 Feb. *60, Pt. 5 Mar.		Electronic controls qualify on Atlantic		Instrumentation	
Consider the human (Ed)Nov. Control engineers star on network TV	>>	Refining's Port Arthur catformer. July		Backseat computer rates fuel in action.	
(WN)Jan.	*12	Get frequency response from transient data by adding vectors. A. R. Teasdale		Parthemore & SprakerJune	*58
Keep the right kind of records to pro-		Ir. Oct.	*55	Canadian Petrofina's automatic process-	
tect your patentable ideas. L. H.	*67	Graphical integration by pole-and-ray.		ing plant (WN)Sept.	•23
King	41	A. S. LevensAug.	71	Color basics for the control engineer.  O. H. Olson. Pt 1 The fundamentals	
Let's pull together-again (Ed)May		Practical guide to plant-controllability.		of color Oct. *78, Pt 2 The instru-	
Needed: technicians abroad (Ed) June	49	Janssen & Aikman, Pt 1 Nov. *58, Pt 2		ments of color measurement Nov.	*90
Where do control engineers come from?	40	You need no computer to graphically		Computers team with nuclear gages to	
(IP)Oct.	49	determine the dynamics of heat per-		control a paper saturating process.	*76
Exhibitions		colation. Yasundo Takahashi (charts)		J. D. Cochrane Jr. & othersDec. Control combats elemental forces:	70
		Guna company	46	firesmogbeerdata&	
British preview of production—process control—Institute of Production En-		Gyro-compass		din (WN)July	*16
gineers meeting in Margate (WN)		Designed for beachhead operations	*10	Control principles and hardware span a	
Sept.	*18	(WN)Jan.	19	continent: Chicago—Machine Tool	
Chicago's Production Engineering				Show and Production Engineering Show; Los Angeles—Instrument	
Show Sept. 6-16—eight institutes to display control for the future (WN)		н		Society of America 10th annual con-	
Aug.	20	Heat exchangers		ference and exhibit (WN)Nov.	*20
Control principles and hardware span		You need no computer to graphically		Control safeguards you: on highway, in	
a continent: Chicago-Machine Tool		determine the dynamics of heat per-		plant, aloft, and in the woods (WN)	*16
Show and Production Engineering		colation. Yasundo Takahashi (charts) May		Aug. Control spurs progress: on land, on sea,	10
Show; Los Angeles—Instrument So- ciety of America 10th annual con-			10	in the air and underground (WN)	
ference and exhibit (WN)Nov.	*20	Hydraulics		June	*16
First Atomic Exposition to be held in		Hydraulic servo actuator has low stand-		Dilution with feedback pays off, 8:1 for	
Cleveland Dec. 12-16 (WN)Aug.	14	by power. Goodwin & Morrison. Aug. Tiny hydraulic system acts like super		Tokyo Gas Co. Sadahiko ArakiJuly	*95
Geneva conclave promises strides in	12	two-way solenoidApr.		Du Pont—how one company centralized	*63
nuclear control (WN)Aug. Geneva shows atomic control: how it	15	Valve actuators tie precision to power.		its control engineeringSept. Geneva shows atomic control: how it	0)
simulates and scans—and what hap-		C. D. Close (charts)Sept.	*97	simulates and scans—and what hap-	
pens without it (WN)Oct.	*24			pens without it (WN)Oct.	*24
IRE N.Y. meeting—40,000 radio engi-		1		Hercules Powder oxychemical plant fea-	
neers map a broad future for control (WN)	*14	Inspection		tures control station centered like orchestra podium (WN)July	*77
ISA Niagara Frontier Section instrument		Automatic judge censors bad bearings		High-pressure measurement and control-	
show in Buffalo (WN)Aug.	*18	(WN)Mar.		equipment and techniques. W. H.	
National Conference on Industrial Hy-		Silent simulator for jet engine testing		HoweApr.	
draulies to be held in Chicago, Oct. 27-28 (WN)Aug.	14	at Northrop	*80	Lab on wheels tours country (WN) May	•18
Texas meetings explore frontiers (WN)				Mason-Nielan control demonstrators shipped to Europe for two-year tour	
Apr.	22	Institutions (colleges, societies, etc.)		(WN)Oct.	*26
Viking rocket goes on display (WN)	+24	American Institute of Chemical Engi-		Modern controls rejuvenate Pueblo's	
Western Electronics Show and Con-	- 54	neers elects Prof. B. F. Dodge presi-		50-year-old soaks (WN)Feb.	*18
ference in San Francisco. E. M.		dent (WN)Feb.		Monitors safeguard industry's processes	***
Grabbe (WN)Oct.	*28	Columbia Univ. School of Engineering offers six evening courses in control		(table) Sept. Optimized plant process control nears	-80
		engineering (WN)Oct.	44	reality. E. W. SilvertoothSept.*	123
Expansion		Electronics Components Conference		Radioactive instruments: versatile, pri-	
Hays Corp. purchases Metrotype Corp.		sponsored by IRE, AIEE, RTMA and		mary elements. Stewart & Leighton	
(WN)	14	WCEMA in Los Angeles, May 25-27	10	(table)	*50
How control companies grow (IP)Jan.	23	highlights (WN)Aug. Harvard Univ. offers graduate courses in		Read torques directly from rotating	*05
Minneapolis-Honeywell and Raytheon		Control Systems Engineering (WN)		shafts. Ira FriedmanOct. Using a two-phase servomotor as an in-	. 95
Manufacturing to form Datamatic Corporation (WN)June	18	Aug.		duction tachometer. S. A. Davis. Nov.	*75
Corporation (1111)	10	IRE elects officers (WN)Jan.	19		
		IRE names officers (WN)Mar.		L	
Flow-liquid		IRE's new control group (WN)Feb.		Labor	
		Instrument Society of America 10th an- nual conference and exhibit in Los			
Factors that guide in proper selection of valves. G. L. RothDec.	46	Angeles (WN)Nov.		Congress lends one car to automation (IP)	22
High-pressure measurement and control	46	M.I.T. offers three summer courses in		Did Reuther speak for all labor? (IP)	20
equipment and techniques. W. H.		automatic control (WN)July	18	Feb.	25
HoweApr.	*53	Operations Research Society of America		Will control engineers help solve labor	pt 3
Keep water pressure constant through	*44	holds seventh meeting Aug. 15-17	40	problems? (IP)Sept. Will legislators probe control? (IP). June	12
pump control. B. A. JamesApr. Optical servo detects refractive index to	*44	(WN) Oct. Our schools advance control engineer-		will registators probe control (11). June	1)
one part in 100,000. Forrest & others		ing—project reports from Case In-		17	
Nov.	103	stitute, Cornell, MIT, Univ. of		M M	
Telegraph signals meter fluid level.	***	Michigan and Ohio StateSept.		Machine tool control	
Fract Wahar		Durdue conference on custame andi		Automatic control now harmesses com	

-11:	F	
plex machining (WN)Aug. *12 Automatic machining—a view and a	Facts that influence your approach to	Nuclear gaging
preview. W. H. Kliever	telemetering. W. E. Rufleth (maps) July *48	Computers team with nuclear gages to
Pt 1. Ways to instruct and drive . Sept.*112	Flame-detector pays no heed to heat.	control a paper saturating process.
Pts 2 & 3. Ways to measure position	R. E. Carbauh	J. D. Cochrane Jr. & othersDec. •76
and size, Oct. *84	High-pressure measurement and control-	
Control stretch with synchros. R. D.	equipment and techniques. W. H.	Nuclear reactors
Atchley	Howe	AMF first with research reactor for
How much control will metalworkers use? (IP)	Lab on wheels tours country (WN). May *18 Monitors safeguard industry's processes	private industry (WN)Apr. *20
Measure motion to 0.0001 in. without	(table)Sept. *80	Control of nuclear reactors. J. A. Dever
friction or wear. J. H. BrownApr. *50	Motion measured to 0.0001 in. without	(charts) Sept. 54
Numerical, punched tape, machine tool	friction or wear. J. H. BrownApr. *50	L&N panel controls Penn State's swim-
control system. H. W. Mergler. Sept.*132	Optical servo detects refractive index to	ming pool reactor (WN)Aug. *14
Space dynamics in machine tool con-	one part in 100,000. Forrest & others	
Tape-controlled machining nears the	Nov.*103 Radiation pyrometer sensitive to freez-	P
average plant (WN)June *14	ing waves. Lieneweg & Schaller Jan. *64	Patents
	Radioactive instruments: versatile, pri-	Committee to speed patent processing
Management	mary elements. Stewart & Leighton	(WN)
Basic books for your control engineer-	(table)	Protect your patentable ideas with the
ing library. T. J. Higgins. Pt 3 Jan.	Read torques directly from rotating shafts. Ira FriedmanOct. *95	right kind of records. L. H. King. Apr. *67
*57, Pt 4 Feb. *60, Pt 5 Mar. *67	Regulate horsepower directly. O. E.	RCA antitrust suit buffets entire elec-
Congress lends one ear to automation	Carlson	tronics industry (WN)Jan. •13
(IP)Dec. 22	Sensors for gaseous diffusion at Britain's	
Du Pont—how one company centralized its control engineeringSept. *63	Capenhurst extraction plantAug. *85	Personality sketches
ns control engineeringsept. *03	Stress-energy measurement needs fast temperature follower. G. L. Smith	Avera, LeeOct. *17
Manufacturian	Apr. *87	Bauer, Louis and FrancesJuly *13
Manufacturing	TV sharpens measurementsAug. *89	Brown, Gordon
Controls pace Southeast industrializa-	•	Doll, Henri-Georges Dec. *15
tion (IP)	Medical applications	Eckman, Don
(WN)Apr. 22	Cancer therapy—moving source makes	Kerley, JimJune *11
Tape-controlled machining nears the	radiation safe. L. J. Bulliet May *78	Kliever, WaldoSept. *17
average plant (WN)June *14	Pressure control system for the iron	Minorsky, Dr. Nicolai May *11
	lung. J. E. WardSept.*135	Paynter, HankJan. *11
Marketing		Rea, Jim
Controls pace Southeast industrializa-	Memories	1000, 510,1
tion (IP)	Electronic filing system (WN)Mar. 13	
If washing machines sell turbines, cosh	Magnetic drum turned inside-out and	Pneumatics
registers can sell computers Feb. *65 Italy looks at America's control market	festooned with tape (WN)Jan. *14	Tie simplicity to power with pneumatic
(IP)July 39	Magnetic memories for high speed com-	servomechanisms. Harold Levenstein
Management eyes-then buys-com-	puting (WN)July *20	Valve actuators tie precision to power.
puters (IP)	New approach to information storage.  G. W. King	C. D. Close (charts)Sept. *97
New products fare phenomenally (IP)	N. Y. Central and United Air Lines to	
Mar. 37 Nuclear energy breeds new markets for	use automatic reservations systems.	
control (IP)Aug. 41	(WN)Oct. 22	Potentiometers
. ,	RCA's prototype system for storing color television and transmitting it from a	Are precision potentiometers really
Materials handling	magnetic tape (WN)July 20	linear? Laru & othersFeb. *67 Compensating function pots for loading
Steel handling equipment for furnaces	TRAK converts Morse code to printed	errors. J. Gilbert (charts)Mar. 70
(WN)Feb. *14	copy	Shortcut in compensating pot loading
Ticket printer consolidates three loading		errors. J. Gilbert (charts & tables)
records. Vernon KleinMar. *83	Meters	Two shortcuts for selecting a precision
	Positive displacement meters. R. W.	trimmer. Frank BradleyJuly 54
Mathematical analysis	Henke (charts & tables)May 56	The state of the s
Basic math with AC analogs. G. M.	Radiation pyrometer sensitive to freez-	
Davidson	ing waves. Lieneweg & Schaller Jan. *64	Production
Design regulating systems by error co- efficients. P. E. Smith JrNov. *69		Automatic control now harnesses com-
Digital computers need methodical	Multiplifers	plex machining (WN)Aug. *12
number systems. I. S. LernerNov. *82	Basic math with AC analogs. G. M.	Automatic machining—a view and a pre-
Dynamic analysis without upset. J. B.	Davidson	view. W. H. Kliever
ReswickJune *50	Compact multiplier puts the Hall effect	Pt 1. Ways to instruct and drive. Sept. *112 Pts 2 & 3. Ways to measure posi-
Practical guide to plant-controllability.  Janssen & Aikman	to work	tion and size, Oct. *84Nov. *77
Space dynamics in machine tool control.		Computer production speeded with
J. L. BowerSept. 105	N	"Autofab" machine (WN)Apr. *12
Systems analysis predicts performance—	Networks	Controlled acceleration and braking get
Methods at Work. Fiedler, McGrath	Compensating	the most from centrifuges. W. K. Klager
& Buescher (charts & tables)July *65	Designing thermistor temperature—	Data processing and inventory control.
	compensating networks graphically.	E. D. Lucas JrSept. 68
Measuring	Frank Bennett	Dielectric plating goes automatic. Geof-
Automatic machining—a view and a	Simulation of	frey Post
preview. W. H. Kliever, Pts 2 & 3 Ways to measure position and size	Computes gas networks (WN)Apr. 13 Ohio Edison power system will be	Inventory control system for B. F. Goodrich (WN)June 22
Oct. *84	controlled by computer (WN). Oct. *20	Iron Curtain switch on power conserva-
Color basics for the control engineer.	Stabilizing	tion (WN) June 18
O. H. Olson. Pt 1 The fundamentals	14 ways to generate control functions	Jones & Lamson unveils automatic tur-
of color Oct. *78, Pt 2 The instru-	mechanically. J. E. Gibson (charts)	ret lathe (WN)Sept. *22
ments of color measurementNov. *90 Dynamic analysis without upset. J. B.	May 65 Simple loop controls power for whole	Optimized plant process control nears reality. E. W. SilvertoothSept.*123
Reswick	state. S. CummingsJune *87	Will legislators probe control? (IP). June 43
	,	
		DECEMBER 1955 120

Publications see Books	Standards	telemetered by date processing system (WN) Sept
	Meeting the need for electronic control	Quicksilver quickens telemetering
Pulses	standards (Ed) Oct. 53 Standards in control (Ed) Feb. 29	switch's sampling pace. Davis & Derry June
Pulses for publisher feedbackJuly *64 What pulses can do for you. A. A.	( )	Radio loop curbs wayward cranes. Aug.
BlundiJuly *56	• • • • • • • • • • • • • • • • • • • •	Tap the transducer to up system ac-
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Systems	curacy. A. D. Maier Oct.
R	Analysis  Analyze control systems graphically.	Telegraph signals meter fluid level.  Ernst Weber
Regulators	H. M. Paynter. Pt 1 Feb *30, Pt 2	
Design regulating systems by error co-	Mar. *72	Temperature
efficients. P. E. Smith JrNov. *69	Error analysis is key to economical systems design. William Allison	Compensating instruments for tempera-
	(charts)	ture changes. Robert Gitlin (charts)
Research	Nuclear reactor control. J. A. Dever (charts)	May Designing thermistor temperature-com-
Forecast for 1955 and beyond (WN)	Systems analysis predicts perform-	pensating networks graphically. Frank
Feb. *12 Science Foundation surveys U. S. indus-	ance-Methods at Work. Fiedler, McGrath & Buescher (charts &	Flame detector pays no heed to heat.
trial research (WN)Jan. 16	tables)July *65	R. E. CarbauhApr.
Wiener reveals more about brain "clock" (WN)July 28	Automatic freightyard shuffles cars	How temperature compensation can be
clock (WIN)July 28	quickly yet gentlyJan. *28 Automatic machining—a view and a	used. Robert GitlinJune ' How temperature affects instrument ac-
	preview. W. H. Kliever	curacy. Robert GitlinApr.
S ampled-data	Pt 1. Ways to instruct and drive.	Stress-energy measurement needs fast
	Pts 2 & 3. Ways to measure posi-	temperature follower. G. L. Smith
Sampled-data feedback improves system response. Bertram & Franklin Sept. 107	tion and sizeOct. *84, Nov. *77	Templates Apr.
a ramminospii 107	Automatic mill control. C. A. Vossberg	Templates reads binary code identifying
ervomechanisms	Mar. *42 Basic digital series	test. V. C. WestcottFeb.
Aircraft booster design. J. M. Nightin-	1. Data processing systems: how they	
gale (charts)Jan. *49	function. J. D. NoeOct. *70	Terminology
Better synchro repeaters from damper-	<ol> <li>Digital computers need methodical number systems. I. S. Lerner. Nov. *82</li> </ol>	"Automation" gets a definition (WN)
stabilized feedback. J. E. Ward July *90 Computing amplifier subs for servo	Broaden your scope (Ed)Apr. 43	Stop coining words! J. J. BrownMar.
amplifier. Hosemann & Pendleton	Chicago to install radio-controlled traffic	Synchromation—a specific word and
(table)	light system (WN)Feb. 14 Computers team with nuclear gages to	principleFeb.
Control stretch with synchros. R. D. Atchley	control a paper saturating process.	Wiener and Brown part semantic cur- tain (WN)
How stabilization improves closed loop	J. D. Cochrane Jr. & othersDec. *76	( , , , , , , , , , , , , , , , , , , ,
operation. Davidson & Nashman. Dec. * Hydraulic servo actuator has low standby	Coordinate control engineering with process development. G. H. Burnett	Testing
power. Goodwin & MorrisonAug. *32	Jan. *38	Are precision potentiometers really
Lower static error in contactor servos	Design Controlled acceleration and braking	linear? Laru & othersFeb.
"Make" contactor servos. D. V. Spriggs	get the most from centrifuges.	Dynamic analysis without upset. J. B. Reswick
Dec. 79	W. K. KlagerAug. *80	Template reads binary code identifying
Optical servo detects refractive index to	Design regulating systems by error co- efficients. P. E. Smith JrNov. *69	test. V. C. WestcottFeb.
one part in 100,000. Forrest & others Nov.*103	Keep water pressure constant through	Water resistant watch stored in steam condenser of Ile de France (WN)
Pressure control system for the iron	pump control. B. A. JamesApr. *44 Magnetic amplifiers invade heavy-duty	Mar.
lung. J. E. Ward Sept.*135	systems. Ulrik KrabbeSept. *90	Timers
Servos that use logic can optimize. Asst. Prof. R. L. CosgriffSept.*133	Numerical, punched tape, machine	4 questions about control timers. J. E.
Servos vs. spirals make light planes	control system. H. W. Mergler Sept.*132	Graham (table)Aug.
safer. K. M. MillerJune *91	Sampled-data feedback improves sys-	Timers pace automatic production. J. E. Graham (table) Sept.
Stress-energy measurement needs fast temperature follower. G. L. Smith	tem response. Bertram & Franklin	Clarian (abic)bpt.
Apr. *87	How stabilization improves closed loop	Training
These 7 steps design a tach stabilized servo. J. E. Kadish (charts)Aug. 72	operation. Davidson & Nashman	Automatic control courses at Univ. of
servo. J. E. Kadish (charts)Aug. 72 Tie simplicity to power with pneumatic	Dec. 68	Michigan (WN)
servomechanisms. Harold Levenstein	Monitors safeguard industry's processes (table)	Control educators pow-wow during Pro-
Using a two-phase servomotor as an in-	Practical guide to plant-controllability.	duction Engineering Show in Chicago (WN)
duction tachometer. S. A. Davis. Nov. *75	Janssen & Aikman. Pt 1 Nov. *58,	Education is our limit (Ed)Jan.
	Pt 2 Dec. 54 Simple loop controls power for whole	Harvard Univ. offers graduate courses in
peed control	state. S. CummingsJune *87	Control Systems Engineering (WN) Aug.
Automatic freightyard shuffles cars	Stress-energy measurement needs fast	RPI gives courses on magnetic amplifiers
quickly yet gentlyJan. *28	temperature follower. G. L. Smith Apr. *87	(WN)
Automatic mill control. C. A. Vossberg	Web registration control system de-	Taylor Instruments Companies conducts symposium on "Frequency Response
Mar. *42 Mechanical integrators control torque-	veloped by Champlain Co., N. J. Oct. *91	for Process Control" (WN)Oct.
speed. L. E. Keene	Where is electronics used in control?  Feb. *41	West. Va. Univ. offers gas measurement
		curricula (WN)Aug. Where do control engineers come from?
abilization		(IP)Oct.
Compensating instruments for tempera-	T	
ture changes. Robert Gitlin (charts)	Telemetering	V
May 70	GE and IBM weld first link of com-	Valves
How temperature compensation can be	puter network (WN)Mar. *12 Facts that influence your approach to	Factors that guide in proper selection of
used. Robert GitlinJune *71  How temperature affects instrument accuracy. Robert Gitlin (charts & tables)	telemetering. W. E. Rufleth (maps)	valves. G. L. RothDec. Valve actuators tie precision to power.

## AUTHOR INDEX

Abt, Clifford F. These steps lead to good	logic can optimizeSept.	
Aikman, A. R. & J. M. L. Janssen. A	76 Cummings, S. Simple loop controls power for whole state	*87 pressure measurement and control Apr. *53
practical guide to plant-controllability	Davidson, Gareth M. Basic math with AC	Humphreys, J. D. Digital commutator
Pt 1 Nov. *58, Pt 2 Dec.		*57 reads panel gagesFeb. *71
Allison, William. A broad look at analog	Davidson, G. M. & Luther Nashman.	James, Bruce A. Keep water pressure con-
Computers	How stabilization improves closed loop operation	stant through pump controlApr. *44 67 Janssen, J. M. L. & A. R. Aikman. A
	51 Davis, Sidney A. Using a two-phase	practical guide to plant-controllability
Araki, Sadahiko. Dilution with feedback	servomotor as an induction tachometer	
pays off, 8:1July *		
Asai, K. & Y. Habu. Robot train follows	Davis, W. R. & J. H. Derry. Quicksilver	control torque-speed Jan. *65
unseen rail from plant to plant. May *. Atchley, R. D. Control stretch with syn-	80 quickens telemetering switch's sam- pling pace	*84 King, Leonard H. Keep the right kind of records to protect your patentable
chros		
Auger, Raymond N. Clockwork torque	quickens telemetering switch's sam-	Klager, W. K. Controlled acceleration and
	63 pling paceJune	
Bengtson, Bengt & Lennart Swenson. This computer trims shipsOct. *	Dever, J. A. Control of nuclear reactors 90 Sept.	
Bennett, Frank. Designing thermistor	Dickstein, Harold. Teletype-tape offers low	three loading recordsMar. *83
temperature-compensating networks	cost storageOct.	*97 Kliever, Waldo H. Automatic machining—
graphically		
Bergeson, R. L. C-G control copes with	moves into controlJan.  80 Fiedler, G. J., T. F. McGrath & A. E.	*42 Pt 1 Sept. *112, Pts 2 & 3 Oct. *84
shifting fuel	Buescher. A systems analysis predicts	Kohnel, A. H. Computer speeds test-flight
data feedback improves system re-	performanceJuly	
sponseSept. 1		Krabbe, Ulrik. Magnetic amplifiers invade
Blundi, A. A. What pulses can do for you	tects refractive index to one part in 100,000	heavy-duty systems
July * Bock, Charles D. Make the most of good	Franklin, G. & J. E. Bertram. Sampled-	
components		Leighton, G. J. & P. J. Stewart. Use radio-
Bottis, T. & K. Burian. How to operate a	sponseSept.	107 active instruments; they're versatile
two-phase motor from a single-phase	Friedman, Ira. Read torques directly from	primary elements
Bower, John L. Space dynamics in ma-	48 rotating shaftsOct. Gibson, John E. 14 ways to generate con-	*95 Lerner, Irwin S. Digital computers need methodical number systemsNov. *82
chine tool controlsSept. 1		
Bradley, Frank. Two shortcuts for select-	Gilbert, J. Compensating function pots for	pole-and-rayAug. 71
ing a precision trimmerJuly	loading errors	70 Levenstein, Harold. Tie simplicity to power
Braun, W. G. & L. M. Warshawsky. Veri-	Shortcut in compensating pot loading	with pneumatic servomechanisms
fier prints out patchcord locations Dec.	83 Gitlin, Robert. How temperature affects	June 65 Lieneweg, Fritz & Alfred Schaller. Radia-
Brown, J. H. Measures motion to 0.0001	instrument accuracyApr.	
in. without friction or wearApr. *	50 How temperature compensation can be	waves
Brown, J. J. Stop coining words! Mar. *		
Buescher, A. E., G. F. Fiedler & T. F.	What's available for compensating in-	instruments with a self-resonant de-
McGrath. A systems analysis predicts performance	struments for temperature changes May	70 Loveman, B. D. & R. D. McCoy, Problem
Bulliet, L. J. Moving source makes radia-	Goodwin, A. E. & D. A. R. Morrison.	checker checks computer tooJuly *97
tion therapy safe		Lucas, E. D. Jr. Data processing and
Burgess, Edward. Another use for the	stand by power	
sphere: the tangent integrator. Aug. * Burian, K. & T. Bottis. How to operate	tronics get a Golden Gate review. Oct.	*28 Mackey, Prof. C. O. A hydraulic analog for thermal circuit analysisSept.*130
a two-phase motor from a single-phase	Data processing systems: how they are	Maier, Alan D. Tap the transducer to up
	48 used	40 system accuracyOct. *92
Burkett, V. T. & F. J. Lingel. Calibrate	Flight control and the digital computer	
instruments with a salf-resonant de- magnetizer	Oct.  83 Graham, J. E. 4 questions about control	checker checks compater too july
Burnett, G. H. Coordinate control engi-	timersAug.	65 McCoy, Rawley D. & others. Are precision potentiometers really linear?Feb. *67
neering with process development	Graham, J. E. Timers pace automatic pro-	McGrath, T. F., A. E. Buescher & G. F.
Campbell Devold P. The mate of the	38 duction Sept.	74 Fiedler. A systems analysis predicts
Campbell, Donald P. The roots of automatic processingSept.	Kadish, Jules E. These 7 steps design a tach stabilized servoAug.	72 performanceJuly *65
Carbauh, R. E. Flame detector pays no	King, Gilbert W. New approach to in-	Mergler, H. W. Numerical, punched tape, machine tool control systemSept.*132
heed to heat	formation storage	*48 Miller, Kenneth M. Servos vs. spirals make
Carlson, Oscar E. Regulate horsepower	Habu, Y. & K. Asai. Robot train follows	light planes safer   Iune *01
Close Charles D. Value actuators tie pro	58 unseen rail from plant to plant. May Henke, Russell W. What you should know	Morrison, D. A. R. & A. E. Goodwin.
Close, Charles D. Valve actuators tie pre- cision to powerSept. *		Hydraulic servo actuator has low
Cochrane, J. D. Jr. & others. Computers	May	standby power
team with nuclear gages to control a	Higgins, Thomas J. Control engineering	Nashman, Luther & G. M. Davidson. How stabilization improves closed loop op-
	76 library Pt 3 Jan *57, Pt 4 Feb *60, Pt 5	D 63
Corey, Victor B. Calibrate angular ac- celerometers without precise accelera-	Hosemann, J. H. & A. D. Pendleton.	Nelson, Eldred. Digital computers need
tionsAug. *	Computing amplifier subs for servo	logical design
Cosgriff, Asst. Prof. R. L. Servos that use	amplifier . ,	*85 Nightingale, James M. Tie theory to prac-

## AUTHOR INDEX

tice in aircraft be ster design Jan.	49
Noe, Jerre D. Data processing systems:	
how they functionOct.	*70
Olson, O. H. Color basics for the con-	
trol engineer Pt 1. The fundamental	
of color Oct	*78
Pt 2. The instruments of color mea-	
surement	*90
O'Neill, Barney J. Now you can design	
with packaged components July	*81
Parthemore, K. G. & R. A. Spraker. Back-	
seat computer rates fuel in action	
June	+58
Paynter, H. M. How to analyze control	
systems graphically Pt 1 Feb *30,	
Pt 2	*72
Pendleton, A. D. & J. H. Hosemann.	
Computing amplifier subs for servo	
amplifier	*85
amplifier	
maticJuly	*93
Reswick, J. B. Dynamic analysis without	
upset	*50
Reynolds, J. B. Jr. Get frequency response	
from transient data by machine com-	
putingOct.	*60
Roberts, Gordon A. Automatic random	
programmerSept.	136
Programmer	

proper selection of valvesDec.	40
Rufleth, Walter E. Facts that influence	
your approach to telemeteringJuly	*41
Schaller, Alfred & Fritz Lieneweg. Radia-	
tion pyrometer sensitive to freezing	
wavesJan.	*6
Scay, Perry A. & others. Are precision	
potentiometers really linear?Feb.	.0
Shurkus, A. A. & others. Optical servo de- tects refractive index to one part in	
100,000Nov.	10
Silvertooth, E. W. Optimized plant process	10
control nears realitySept.	12
Smith, G. L. Stress-energy measurement	
needs fast temperature follower Apr.	*8
Smith, Paul E. Jr. Designing regulating	
systems by error coefficientsNov.	*6
Spraker, R. A. & K. G. Parthemore. Back-	
seat computer rates fuel in action	
June .	*5
Spriggs, D. V. "Make" contactor servos	7
Staubitz, Louis & others. Computers team	- /
with nuclear gages to control a paper	
saturating processDec.	7
Stewart, P. J. & G. J. Leighton. Use radio-	,
active instruments; they're versatile	
primary elements Mar	*5

Straat, H. W. & others. Optical servo de- tects refractive index to one part in	
100,000	13
Swenson, Lennart & Bengt Bengtson. This computer trims ships Oct. *9	
Takahashi, Yasundo. You need no com- puter to graphically determine the	
	16
Teasdale, A. R. Jr. Get frequency response from transient data by adding vectors	
	56
Van Horne, W. E. & others. Computers team with nuclear gages to control a	
paper saturating processDec.	76
Vossberg, Carl A. Get results from new techniques in automatic mill control	
Mar. *	12
Ward, John E. Better synchro repeaters from damper-stabilized feedback. July ** Pressure control system for the iron lung	90
Sept.*1	35
Warshawsky, L. M. & W. G. Braun. Verifier prints out patchcord locations	
Dec.	83
Weber, Ernst. Telegraph signals meter fluid level	87
Westcott, Vernon C. Template reads bi- nary code identifying testFeb. *	73